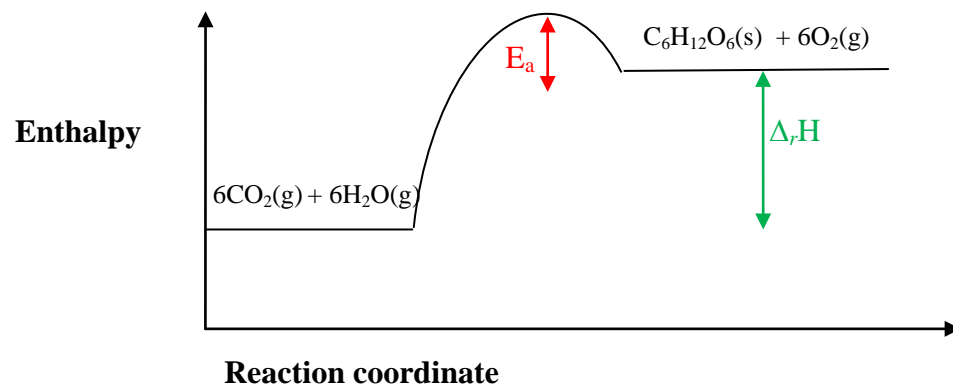


## ANSWERS: Crystal ball questions on Explaining Endothermic and Exothermic reactions

1)

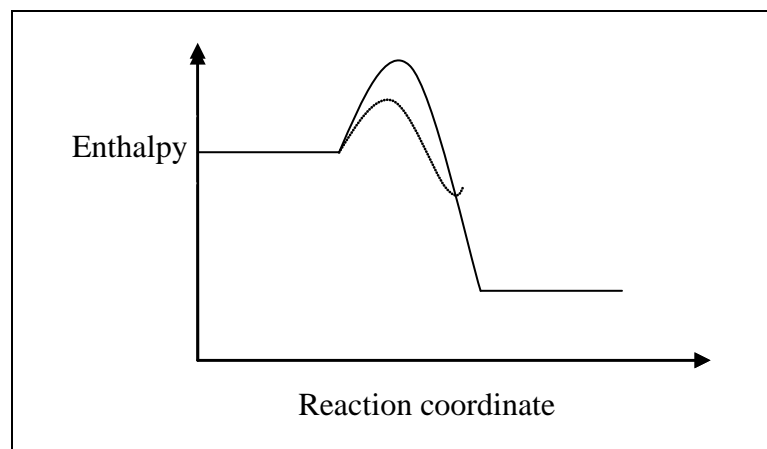


This is an endothermic reaction because

- the enthalpy of products is greater than the enthalpy of reactants
- $\Delta_r H$  for the reaction is given as a positive value ( $+2820 \text{ kJ mol}^{-1}$ )
- light energy is needed for the reaction (so energy enters the reaction)

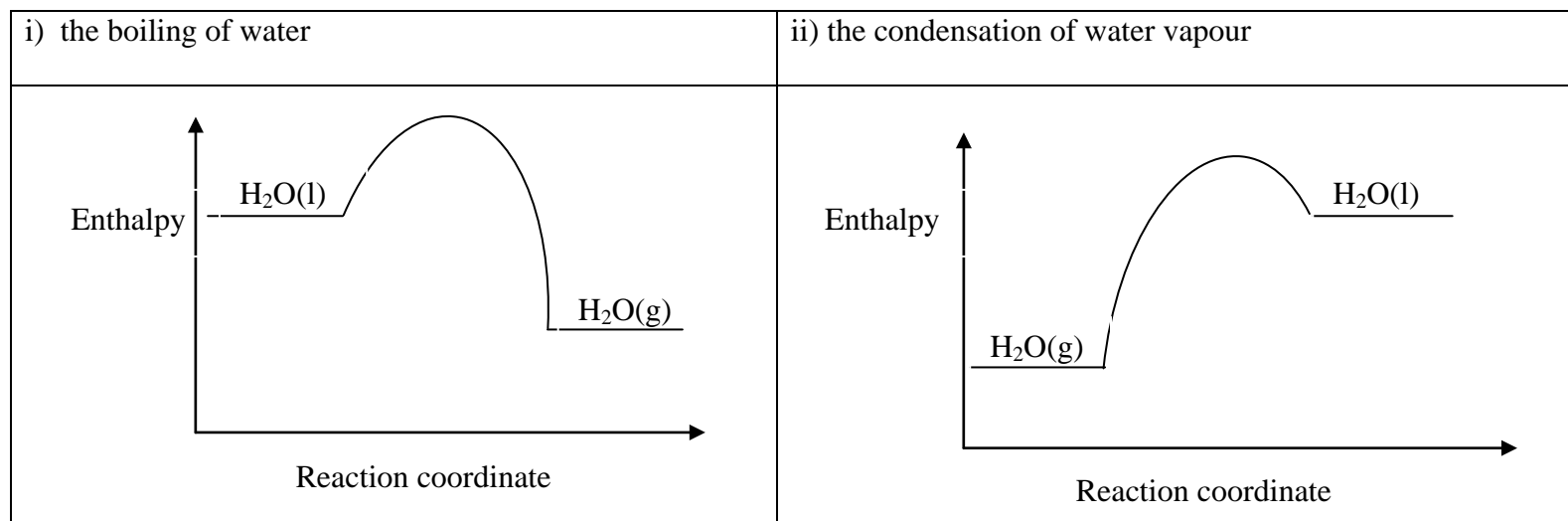
2) i) Energy is released as the reaction has a negative sign so it is an exothermic reaction

ii) and iii)

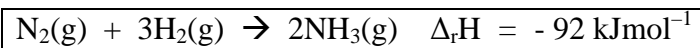


iv) The overall yield of oxygen gas will be exactly the same if a catalyst is used because a catalyst increases the rate of a reaction, a catalyst does not change the overall yield.

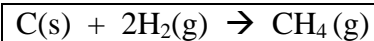
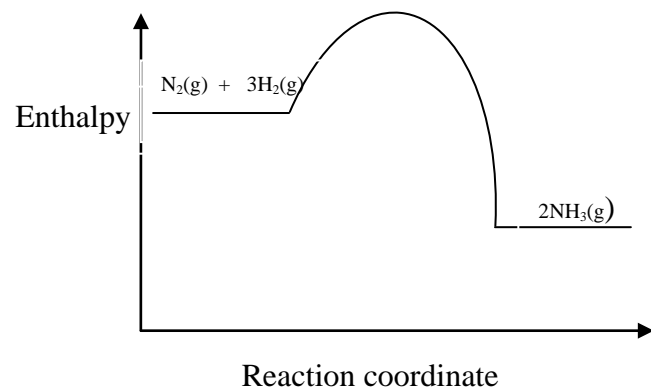
3)



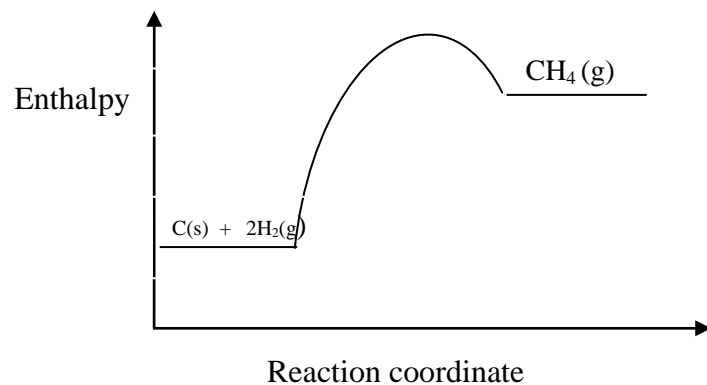
4)

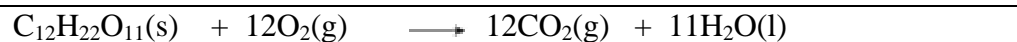


This is an exothermic reaction and the reaction gives out heat because the reactants have more energy than the products, this is shown by the minus sign

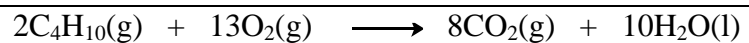
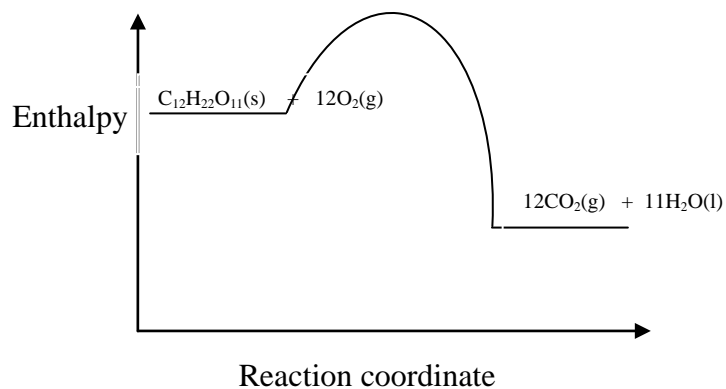


This is an endothermic reaction and the reaction takes in heat because the products have more energy than the reactants, this is shown by the positive sign





This is an exothermic reaction and the reaction gives out heat because the reactants have more energy than the products, this is shown by the minus sign



This is an exothermic reaction and the reaction gives out heat because the reactants have more energy than the products, this is shown by the minus sign

